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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,500	06/11/2001	Rakesh Malik	851663.422USPC	9419

7590 02/26/2004

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EXAMINER	
DO, CHAT C	
ART UNIT	**PAPER NUMBER**
2124	8

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Boby Emory August 26th 2004

Office Action Summary	Application No.	Applicant(s)	
	09/807,500	MALIK ET AL.	
	Examiner	Art Unit	
	Chat C. Do	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06/11/01;10/23/01;01/11/02*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 June 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 5-8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation "logic block consisting of full adder and full subtractor elements" in line 6 of claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without

underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

4. The disclosure is objected to because of the following informalities: specification is not written in required format and arrangement as quoted above.

Appropriate correction is required.

Claim Objections

5. Claims 1, 7, and 9 are objected to because of the following informalities:

Re claims 1 and 9, the phrase "where S1, S1, Sn are filter coefficients and a0, b0...k0, a1, b1...k1, am, bm, ...km are (+/-1 or 0)." in lines 5-6 should replace with

"where S1...Sn are filter coefficients and {a0, b0,...k0}...{am, bm,...km} are either +1, -1, or 0." for clarification.

Re claim 7, the term "FIR" is required to define once in the claim as "finite impulse response (FIR)".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 1, there are many cited limitations that lack antecedence basis. For instant, the limitation "the filter transfer function" in line 4 lacks an antecedence basis. For examination purposes, the examiner considers this limitation as "a filter transfer function". In addition, several technical limitations in the claim are cited with a generic name in combination with a letter in square brackets like "logic architecture [A]" and "delay blocks [E] and/or [F]...". These citations result in conflict with limitations in claim without regarding to the references in Figures. For examination purposes, the examiner considers these blocks as generic blocks without the limitations seen in Figure referenced by the blocks. Claims 2-17, these claims also have many problems with antecedence basis and citations.

The applicant is required to make all the appropriate corrections that would exist in the claims.

Re claim 7, the symbols "S1, S2, ...Sn" in line 5 is unclear whether S1...Sn are the input data as cited in specification page 19 last paragraph or S1...Sn are the filter transfer function coefficients as cited in the claim. For examination purposes, the examiner considers these symbols as the input data. Claim 9 has the same problem.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 7-11 and 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Saramaki et al. (U.S. 6,370,556).

Re claim 7, Saramaki et al. disclose in Figure 4 a bit serial FIR filter (abstract) device including: a logic block (51) adapted to receive an (m+1) bit input and to produce a transfer function output (y) corresponding to the mth bit position, the block including: a combinational-sequential logic block adapted to receive a filter transfer function coefficients (52 and col. 3 lines 54-58) or a predetermined transfer function and including m+1 combinational logic blocks (53-56 except 55 wherein m = 3); and a sequential logic block having m delay element (58-60) for receiving respective outputs of blocks and for

providing delayed outputs to respective blocks; wherein each block Bx includes a plurality of serial subtractor or adder elements (col. 3 lines 58-61), up to a maximum of n, for providing a coefficient multiplication function for each block Bx; and wherein block Bm (53 and 63) output transfer function output according to transfer function based on (m+1)-bit input (y).

Re claim 8, it has general limitations cited in claim 7. Thus, claim 8 is also rejected under the same rationale in the rejection of rejected claim 7.

Re claim 9, Saramaki et al. further disclose in Figure 4 the combinational circuit implements the addition terms of the filter transfer function using the following form: (a0*S1+b0*S2+..+k0*Sn)... (am*S1+bm*S2+..+km*Sn) (col. 1 equation 1) where S1...Sn are filter coefficients and a0...am, b0...bm, k0...km are (+/- 1 or 0) (col. 1 lines 22-27).

Re claim 10, Saramaki et al. further disclose in Figure 4 the coefficient circuit receives n serial input bits (52).

Re claim 11, Saramaki et al. further disclose in Figure 4 the combinational circuit and the sequential circuit are interconnected to implement a finite input response (FIR) filter (abstract).

Re claim 13, it is a method claim of claim 8. Thus, claim 13 is also rejected under the same rationale in the rejection of rejected claim 8.

Re claim 14, it is a method claim of claim 10. Thus, claim 14 is also rejected under the same rationale in the rejection of rejected claim 10.

Re claim 15, Saramaki et al. further disclose in Figure 4 the n input bits are serial input bits (x input into 51).

Re claim 16, it is a method claim of claim 11. Thus, claim 16 is also rejected under the same rationale in the rejection of rejected claim 11.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being obvious over Saramaki et al. (U.S. 6,370,556).

Re claim 12, Saramaki et al. do not disclose the combinational circuit and the sequential circuit are interconnected to implement an infinite input response (IIR) filter. However, the examiner takes an official notice that the concept of IIR filter is well known in the art. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to implement an IIR filter into Saramaki et al.'s invention using the method of the same because it would enable to reduce the number of coefficients/order and increase the performance time.

Re claim 17, it is a method claim of claim 12. Thus, claim 17 is also rejected under the same rationale in the rejection of rejected claim 12.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 4,752,905 to Nakagawa et al. disclose a high-speed multiplier having carry-save adder circuit.

b. U.S. Patent No. 5,262,972 to Holden et al. disclose a multichannel digital filter apparatus and method.

c. U.S. Patent No. 4,982,354 to Takeuchi et al. disclose a digital finite implulse response filter and method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (703) 305-5655. The examiner can normally be reached on M => F from 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (703) 305-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do

Examiner
Art Unit 2124

February 20, 2004

TODD INGBERG
PRIMARY EXAMINER